

## CLAIMS

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What is claimed is:

1. An air treatment system for controlling contaminants in or from a vehicle HVAC functional environment comprising:

10 a sensor means located in the cockpit or passenger compartment of a motor vehicle;

an oxidant generation means ;

a controller means ;

an HVAC unit ; and

15 wherein the HVAC functional environment comprises an oxidant level sufficient to be septicidal to micro-organisms.

2. An air treatment system as in claim 1 wherein the sensor means is located at a low level in the passenger compartment.

20 3. The air treatment system as in claim 2 wherein the level of oxidant concentration within the cockpit or passenger compartment is controlled via a feedback loop mechanism to maintain an oxidant concentration in the cockpit or passenger compartment of between about 0 to 0.06 ppm.

25 4. The air treatment system as in claim 2 wherein the oxidant is ozone.

5. The air treatment system as in claim 3 wherein the oxidant is ozone.

6. The air treatment system as in claim 5, wherein the ozone concentration within the HVAC functional environment is maintained between about 8 ppm and 1ppm.

7. The air treatment system as in claim 6, wherein the ozone concentration is  
5 maintained between about one hour and six hours.

8. A method controlling contaminants in a vehicle HVAC functional environment wherein micro-organism development or growth, and therefore, the substances derived therefrom, are controlled via the use of an oxidant in the closed area of the HVAC  
10 system.

9. A method of controlling containments in a motor vehicle:  
providing oxidant into the HVAC unit via an oxidant generator;  
maintaining oxidant concentration to between about 0.45 ppm and 0.1ppm during a  
15 period of from about 4 hours to 6 hours in the HVAC unit;  
purging the HVAC, if necessary, to remove excess oxidant;  
maintaining an oxidant concentration of less or equal to about 0.1 ppm at all times in the cockpit or passenger compartment of a vehicle;  
thereby reducing the amount of odor or allergen that reaches the cockpit or passenger  
20 compartment of a vehicle.

10. A method as in claim 9 wherein the oxidant concentration maintained is less than or equal to about 0.05ppm.

25 11. A method as in claim 10 wherein the oxidant is ozone and the contaminants to be controlled are selected from the group consisting of bacteria, yeast, fungi, mold and related allergens.

12. A method as in claim 9 wherein the contaminants to be controlled are bacteria and yeast.

13. A method as in claim 12 whereby the concentrations of ozone within the cockpit or  
5 passenger compartment of a vehicle is controlled by a feedback mechanism.

14. An air treatment system for controlling contaminants in a vehicle HVAC functional environment comprising:

a sensor;

10 a controller means;

an HVAC unit;

a vehicle owner/operator control means; and

an oxidant generating means;

wherein the oxidant produced by the oxidant generating means is directly introduced into  
15 the HVAC unit from the generating means.

15. The air treatment system as in claim 14 wherein the oxidant is ozone and the oxidant generating means is an ozone generator.

20 16. The air treatment system as in claim 13 wherein the controller means is a vehicle body controller.

17. The air treatment system as in claim 13, further comprising a feedback loop mechanism wherein ozone generation is regulated or controlled by means of a series of  
25 actions involving a switch, ozone and vehicle sensors, a timer, and vehicle body controller, and wherein the heat exchangers of the HVAC unit are permeated with ozone.